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(54) Abstract Title: **Improvements in multi-colour coated comestibles**

(57) In the manufacture of a multi-coloured comestible product, e.g. a chocolate bar or a chocolate coating for a cake, an out of proportion image is formed on a planar carrier of food grade plastic material, the image being formed by screen printing using an edible ink. The carrier and the image are then moulded, e.g. by a vacuum forming means, to create a relief mould in which the out of proportion image is regularised to a true image of a design to be applied to a comestible. After forming the relief mould may be filled with chocolate or other filling as required. The coated comestible may then be removed from the relief mould immediately thereafter or when required for subsequent packaging and distribution. Alternatively, the relief moulds may be stored for some time before being filled with chocolate or other filling. In either case the demoulded product is provided with a true to life image thereon. The edible inks used may include a mixture of fondant icing sugar, Polysorbate 60, glycerine, lecithin and water.

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IMPROVEMENTS IN MULTI-COLOUR COATED COMESTIBLES

This invention is concerned with improvements in or relating to the application of a multi-coloured image to a comestible product; and more particularly, this invention is concerned with an improved method of applying a mutlt-coloured image to a three dimensional comestible product.

There are many methods that may be employed for applying a multi-coloured image to a comestible product, viz. a chocolate bar or chocolate coating for decorating a cake.

The surfaces of a chocolate bar and/or a chocolate coating to be provided with a multi-coloured image are generally of planar configuration; therefore, it is not difficult to apply the required images by screen-printing, or any other convenient method

However, with surfaces of three-dimensional configuration, it is not possible to use screen-printing or any other method that is normally employed for applying images to a planar surface.

Some decorated products have been made by hand painting multi-coloured images on a mould surface using pre-tempered coloured chocolate and thereafter filling the mould with chocolate, chocolate compound or a fat-based compound. This is a laborious and time-consuming method, which is too costly for general usage.

Thus, it is one of the objects of the present invention to provide an improved method for applying a multi-coloured image to a three-dimensional comestible product.

It is another object of the present invention to overcome, or at least mitigate the disadvantages of prior methods for applying multi-coloured images to a

comestible product.

The present invention conveniently provides a method for use in the manufacture of a comestible product having a multi-coloured image applied to a non-planar surface thereof comprising the steps of:

(a) creating an out of proportion image on a carrier; and,

(b) deforming the carrier to form a relief mould configuration whereby the out of proportion image is regularised as an image to be provided on a comestible product.

Preferably, comestible material is deposited in the relief mould to overlie the regularised image, the comestible material thereafter being allowed to set whereupon the comestible product, with an image applied thereto, is removed from the relief mould.

Conveniently, the multi-coloured image is created on the carrier by a screen printing process using an edible ink mixture.

Preferably, the edible ink mixture is formed by mixing coloured inks in water under high shear, adding fondant icing to the admixed ink/water and mixing until a smooth consistency, the edible ink mixture may further include polysorbate, glycerine, lecithin and water as required.

Preferably, the comestible material on which a muti-coloured image is to be provided may be chocolate, chocolate compound or fat based compound.

Conveniently, the carrier is a planar sheet of plastic material, i.e. a food grade PVC.

In one preferred method, provided by the present invention, the carrier sheet may be deformed by creating a vacuum between a mould coated with a heat

resistant, non-stick material and the carrier sheet.

Conveniently, the mould may be made from aluminium, aluminium resin, brass, copper or magnesium and the heat resistant, non-stick material may be 'Teflon'(RTM).

Preferably, the edible ink mixture comprises the following ingredients by weight of the total weight of the admixture:

a) between 0.800 Kg and 1.600 Kg Fondant Icing Sugar;
b) up to 0.040 Kg Polysorbate 60;
c) up to 0.015 Kg Glycerine;
d) 0.020 Kg to 0.080 Kg Lecithin; and,
e) 0.150 Kg to 0.350 Kg Water.

More preferably, the edible ink mixture may comprise:

a) 1.000 Kg Fondant Icing Sugar;
b) 0.020 Kg Polysorbate 60;
c) 0.004 Kg Glycereine;
d) 0.045 Kg Lecithin; and,
e) 0.280 Kg Water.

The present invention conveniently provides a comestible product manufactured by the method according to any one of the last ten preceding paragraphs.

Preferably, the comestible product may be a bar of chocolate, a cake or the like, provided with a three-dimensional shape or configuration of a cartoon character or pictorial representation.

There now follows a detailed description of the novel method provided by the present invention for the application of a multi-coloured image on a comestible product.

In effecting the method provided by the present invention, a planar carrier sheet of virgin grade PVC has a multi-coloured image applied thereto using edible inks applied to the carrier sheet by a screen-printing process.

The image that is applied to the planar carrier sheet is disproportionate to that which is to be applied to a comestible product, viz. a chocolate bar or a decoration for a cake, having a three-dimensional configuration. This is because the mere application of a true life-like image to the carrier sheet would result in a deformed image being provided on a product having a three-dimensional shape or configuration.

The carrier sheet with the disproportionate image applied thereto is placed in register with a mould tool of a vacuum forming press, operation of which causes the planar carrier sheet with the multi-coloured image to be moulded as a relief mould with a desired shape and configuration.

The relief mould may then be packaged for storage until required for use when it will be filled with chocolate as described hereinafter.

Alternatively, the relief mould is then placed in a Knobel Chocolate Depositor and a required amount of chocolate is deposited therein.

The relief mould with the chocolate deposited therein is allowed to cool by passing them through a Solich Cooling Tunnel; they are then packaged for storage until required for use whereupon the chocolate, with the multi-coloured image adhering thereto, will be removed from the relief mould.

Alternatively, after the chocolate has cooled to a temperature at which it is self- supporting, it is removed from the relief mould, the multi-coloured image adhering to the surface of the chocolate.

Chocolate bars and cake decorations produced in this way are aesthetically

pleasing in that the coloured images are realigned from the disproportionate form as applied to the planar carrier sheet to give a true representation of the required pattern or ornament when transferred to the surface of the chocolate from the relief mould.

With this method of coating chocolate, a three-dimensional configuration, such as a cartoon character, may be provided atop of a chocolate bar or on a chocolate coating for decorating a cake.

The general recipe for the edible inks used in the above method by weight of the total weight of the mixture is as follows:

a) between 0.800 Kg and 1.600 Kg Fondant Icing Sugar;

b) up to 0.040 Kg Polysorbate 60;

c) up to 0.015 Kg Glycerine;

d) 0.020 Kg to 0.080 Kg Lecithin; and,

e) 0.150 Kg to 0.350 Kg Water.

In a specific Example the ingredients used were as follows:

Dry Ingredients	Kg	% By Wt
Fondant Icing Sugar	1.000	73.341
Liquid Ingredients		
Polysorbate 60	0.020	1.466
Glycerine	0.004	0.293
Lecithin	0.045	4.399
Water	0.280	20.528

The colours, in powder form, to be added to the recipe are as follows: E100, E102, E104, E110, E120, E122, E124, E127, E129, E131, E133, E140, E141, E153, E160, E161(b), E163, E170 and E171 at a pigment level between 5% and 30% of the powdered ink. These colours are used to achieve a four colour process set or block print set.

The method employed for mixing the edible ink is as follows:

1. The required colours are dissolved in water using a high shear hand blender and then added to the fondant icing sugar and mixed in a similar manner.

2. The remaining liquid ingredients, viz. the lecithin, polysorbate 60 and glycerine are added and mixed in using the hand blender until a smooth liquid is formed.

The mould tool, in male or female format, used in the vacuum forming press is made from aluminium, aluminium resin, brass, copper or magnesium coated with 'TEFLON' (RTM).

The chocolate/chocolate compound may have the following ingredients:

a) Icing or Fondant Icing Sugar;
b) Lactose;
c) Lecithin;
d) Cocoa Butter;
e) Butterfat;
f) Hydrogenated Vegetable Oil;
g) Whey Powders;
h) Milk Powders;
i) Whole Milk;
j) Skim Milk Powder; and,
k) Full Cream Milk.

In producing the multi-coloured coatings on a chocolate product the vacuum moulded relief mould may be stored for up to six months before chocolate is deposited therein.

Likewise, the relief mould with the chocolate deposited therein may be stored for up to eighteen months before the coated chocolate is de-moulded for use.

It will be readily appreciated from the forgoing that the shortcomings of prior art arrangements for providing multi-coloured coatings on three-dimensional chocolate products have been overcome.

CLAIMS

1. A method for use in the manufacture of a comestible product having a multi-coloured image applied to a non-planar surface thereof comprising the steps of:

   a) creating an out of proportion image on a carrier; and,

   b) deforming the carrier to form a relief mould configuration whereby the out of proportion image is regularised as an image to be provided on a comestible product.

2. A method according to Claim 1 wherein comestible material is deposited in the relief mould to overlie the regularised image, the mould and comestible material thereafter being allowed to cool whereupon the comestible product with an image applied thereto is removed from the mould.

3. A method according to either one of Claims 1 and 2 wherein the multi-coloured image is created on the carrier by a screen printing process using an edible ink mixture.

4. A method according to Claim 3 wherein the edible ink mixture is formed by mixing coloured inks in water under high shear, adding fondant icing to the admixed ink/water and mixing until a smooth consistency.

5. A method according to Claim 4 wherein the edible ink mixture further includes polysorbate, glycerine, lethicin and water as required.

6. A method according to any one of Claims 2 to 5 wherein the comestible material is chocolate, chocolate compound or a fat based compound.

7. A method according to any one of the preceding Claims wherein the carrier is a planar sheet of plastics material.

8. A method according to Claim 7 wherein the plastics material is a food grade PVC.

9. A method according to any one of the Claims 1 to 8 wherein deforming the carrier is effected by creating a vacuum between a mould coated with a heat resistant, non-stick material and the carrier.

10 A method according to Claim 9 wherein the mould is made from aluminium, aluminium resin, brass, copper or magnesium.

11. A method according to either one of Claim 9 and 10 wherein the heat resistant, non-stick material is 'Teflon'.

12. A method according to any one of Claims 3 to 11 wherein the edible ink mixture comprises the following ingredients by weight of the total weight of the admixture:

a) between 0.800 Kg and 1.600 Kg Fondant Icing Sugar;
b) up to 0.040 Kg Polysorbate 60;
c) up to 0.015 Kg Glycerine;
d) 0.020 Kg to 0.080 Kg Lecithin; and,
e) 0.150 Kg to 0.350 Kg Water.

13. A method according to Claim 12 wherein the edible ink mixture comprises:

a) 1.000 Kg Fondant Icing Sugar;
b) 0.020 Kg Polysorbate 60;
c) 0.004 Kg Glycereine;
d) 0.045 Kg Lecithin; and,
e) 0.280 Kg Water.

14. A comestible product manufactured by the method according to any one of the preceding Claims.

15. A comestible product according to Claim 14 wherein the comestible product is a bar of chocolate, a cake or the like, provided with a three-dimensional shape or configuration of a cartoon character or pictorial representation.

Application No: GB 0300908.1
Claims searched: 1-15

Examiner: A J Rudge
Date of search: 17 July 2003

Patents Act 1977 : Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance	
Y	1 at least	GB2342071A	(BOWLES *et al*) - whole document
Y	"	JP2097357A	(TOPPAN) - see abstract

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC[V]:

B6C

Worldwide search of patent documents classified in the following areas of the IPC[7]:

A23G; A23P; B05D; B44D ;B65D

The following online and other databases have been used in the preparation of this search report:

EPODOC, JAPIO,WPI